

ARTILLIARY BATTLE is a game for two players where each player tries to destroy the other. As the random battlefield unfolds, try to imagine yourself as a gunnery sargent in charge of a large gun emplacement. A blinking of activity can be seen in your gun mount as you and your crew plan your strategy. The data (wind velocity and direction) is analyzed and it's time for your test shot. Using your vast experience you select the proper barrel angle (by turning your knob to change the barrel angle in 5 degree increments). An exploding projectile is dropped into the breach and you give the order to add the right amount of powder (by moving your joystick - left to decrease whole bags; right to increase whole bags; back to decrease tenths of bags; forward to increase tenths of bags). All is in readiness now and you give the final order: "Lights out, FIRE!". (you pull the trigger). The barrel of the big gun can be seen to recoil as the heavy shot issues forth with a bang. You wait in hopeful anticipation as the projectile swishes through the air toward its intended target. Anticipation heightens as the shot disappears into the clouds (a high shot may go off the top of the screen and reenter). Lower and lower to the ground until it hits with a colorful explosion; you know that the point of impact was a function of the barrel angle, the amount of powder and the wind. Even as your turn is over, you calculate the corrections necessary to improve the accuracy of your next shot, remembering that the wind could change. Your enemy is destroyed when his ammunition supply is hit and goes off in a second, more violent explosion. At that point the running score is also displayed. Good luck and good shooting!

PROGRAM NARRATION

- 010 Initializes gun parameter storage.
- 020-060 Draws the rugged terrain outline. NOTE this is a random terrain wich may be suitable for other games.
- 070 Initializes terrain fill-in and sets the initial wind velocity (negative = left; positive = right).
- 080-120 Fills in the terrain and selects the starting player.
- 130-160 Positions the guns at a random position on the terrain.
- 170-180 Blinks the window on the gun whose turn it is to shoot.
- 190-200 Calculates and displays the new wind velocity.
- 210-220 Prints the initial angle and bag settings for the gun.
- 230 Senses the trigger to begin the shot.
- 240-270 Accepts changes in the barrel angle and displays them.
- 280-290 Calculates the sine of A by look-up method.
- 300-340 Accepts changes in bag count and displays them.
- 350-380 Handles the initial shot including sound effects.
- 390 Initializes the shot trajectory parameters.
- 400-420 Carries the shot through its trajectory until it hits something or goes off the screen.
- 430-440 Provides the explosion of the impact.
- 450-460 Assesses the damage to the target gun.
- 470-480 Causes a second explosion for severe damage and shows score.
- 490 Is a delay before starting the next game.
- 500-590 Is a 45 degree sine table .

Respectfully,

John D. Perkins

The following are some HELPFUL HINTS to expand your experience:

1. Firing the gun with too little powder may cause the projectile to explode in the barrel causing injury to your own gun.

2. Shooting too high into the wind may cause your shot to fall on your own gun with similar effects.

3. You may choose to shoot over terrain or blast a tunnel through it.

4. The projectile explodes on impact whenever its "stepped" movement brings it in contact with a black spot whether it be gun, terrain, or debris. If a projectile appears to "go right through" an object, it is because none of its steps hit a black spot. This simulates a lateral miss. To correct, you must use a different angle, a different amount of powder, or wait for the wind to change.

5. Most of the explosion is upward so that a hit directly on top will not do as much damage as a hit well inside. A gun is destroyed when less than half of the gun remains (excluding the barrel). Your crew will automatically replace a damaged barrel.

6. In order to keep a super-experienced gunner from remembering the effect of various angle and bag combinations, and thus having an unfair advantage, the effects of gravity on the shot change with every game.

7. To be a successful gunner (other than by pure luck) it is important that you remember what the previous wind speed and direction were, such that you can allow for the effect of the new wind velocity.